classification of the bees (Hymenoptera). Bull. Amer. Mus. Nat. Hist. **82**: 151–326, text figs. 1–246, diagrams 1–13.

————. 1953. Comparative morphological and systematic studies of bee larvae with a key to the families of hymenopterous larvae. Univ. Kansas Sci. Bull. **35**(II): 987–1102, figs. 1–287.

MOURE, PE. J. S., CMF. 1950. Euherbstiinae nova sub-familia de Andrenidae (Hymenopt.-Apoidea). Dusenia **1**: 303–306.

ROZEN, JEROME G., JR. 1951. A preliminary comparative study of the male gentalia of Andrenidae (Hymenoptera, Apoidea). Jour. Kansas Ent. Soc. **24**: 142–150, figs. 1–17.

A MALFORMED OVARY IN THE BEDBUG, *CIMEX LECTULARIUS* LINN. (HETEROPTERA: CIMICIDAE).

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Abstract A malformed left ovary is described, in which the number of ovarioles has become reduced, the left lateral oviduct is absent, and the corresponding seminal receptacle is attached to the right lateral oviduct near the right seminal receptacle.

While doing routine dissections on female *Cimex lectularius*, I discovered the ovarian anomaly described here; in several thousand such dissections, this is the only such anomaly I have seen. The right ovary is normal and consists of the usual seven ovarioles. The outer two of these contain full-term eggs ready to be laid; the two ovarioles median to these contain eggs nearly ripe; and the three innermost ovarioles contain less ripe eggs, the egg in one of these ovarioles showing only early stages of yolk-deposition. The right seminal receptacle is normal and greatly distended with sperm.

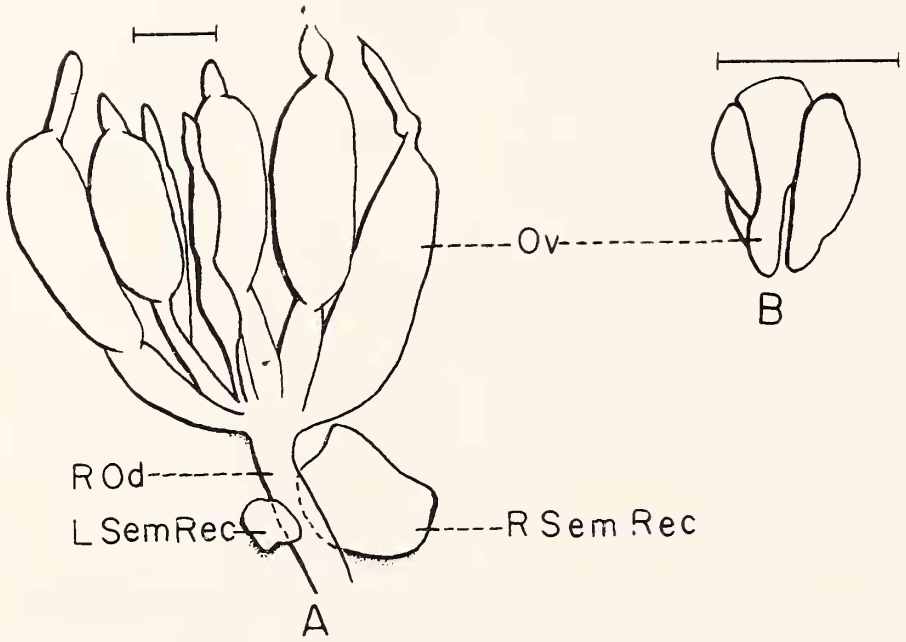

Figure 1. Ovaries of *Cimex lectularius* Linn. A. normal (left). B. anomalous (right). Ov—ovariole, L, R Sem Rec—left, right seminal receptacle; R Od—right oviduct. The scale-markers represent 0.37 mm.

The left, anomalous ovary is greatly reduced, although it is well tracheated (as is usual for this organ). Its ovarioles are shorter and thicker than they are even in the pre-molt last-instar nymph. Only four ovarioles can be discerned with any certainty. These thicker fewer ovarioles could have been developed by fusion of the normal seven. The general appearance suggests an abortive ovary in which nevertheless some yolk-deposition has occurred (Fig. 1).

The connections of this anomalous ovary were lost in dissecting, but no recognizable left lateral oviduct is apparent. However, the left seminal receptacle is present, as an outpocketing of the *right* lateral oviduct. To my knowledge, no detailed description exists of the development in the Cimicidae of the internal female genitalia. Any such account should consider this significant relationship between lateral oviducts and seminal receptacles.

SPECIES REPLACEMENT AS A FACTOR AFFECTING DISTRIBUTION OF *FORMICA OPACIVENTRIS* EMERY[1] (HYMENOPTERA: FORMICIDAE)

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Abstract The local distribution of a population of *Formica opaciventris* mounds in Wyoming is described.

At the study area *opaciventris* is restricted to a silver sage meadow and to the ecotones of that meadow with adjacent forests. Measurements of the spatial distribution of the mounds describe a tendency toward regular spacing, rather than a random or aggregated pattern.

F. opaciventris competes for constructed mound sites with *F. fusca* at those areas in which the distribution of the two species overlaps. Competition is evidenced by active species replacement, 93 instances of replacement are cited.

It is our purpose here to describe the ecological distribution of a single population of mound nests of *Formica opaciventris* and to identify some of the factors which appear to be influencing its density and distribution.

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We express appreciation to the National Park Service for permission to conduct these studies within the boundaries of Grand Teton National Park.